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11/06/00

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No 42390.P8182

Pages 5

First Named Inventor or Application Identifier Dan H. Nowlin

Express Mail Label No. EL617211314US

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, D. C. 20231

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. X Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)
2. X Specification (Total Pages 16)
(preferred arrangement set forth below)
 - Descriptive Title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claims
 - Abstract of the Disclosure
3. X Drawings(s) (35 USC 113) (Total Sheets 3)
4. X Oath or Declaration (Total Pages 5 signed)
 - a. X Newly Executed (Original or Copy)
 - b. Copy from a Prior Application (37 CFR 1.63(d))
(for Continuation/Divisional with Box 17 completed) (**Note Box 5 below**)
 - i. DELETIONS OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5. Incorporation By Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. Microfiche Computer Program (Appendix)

09/707410

7. _____ Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
a. _____ Computer Readable Copy
b. _____ Paper Copy (identical to computer copy)
c. _____ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. X Assignment Papers (cover sheet & documents(s))
9. _____ a. 37 CFR 3.73(b) Statement (where there is an assignee)
 X b. Power of Attorney
10. _____ English Translation Document (if applicable)
11. _____ a. Information Disclosure Statement (IDS)/PTO-1449
_____ b. Copies of IDS Citations
12. _____ Preliminary Amendment
13. X Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. _____ a. Small Entity Statement(s)
_____ b. Statement filed in prior application, Status still proper and desired
15. _____ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. X Other: Copy of postcard with Express Mail Certificate of Mailing

17. **If a CONTINUING APPLICATION**, check appropriate box and supply the requisite information:
____ Continuation ____ Divisional ____ Continuation-in-part (CIP)
of prior application No: _____

18. **Correspondence Address**

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or

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12/01/97

FEE TRANSMITTAL FOR FY 2001**TOTAL AMOUNT OF PAYMENT (\$)** 782.00**Complete if Known:****Application No.** _____**Filing Date** November 6, 2000**First Named Inventor** Dan H. Nowlin**Group Art Unit** _____**Examiner Name** _____**Attorney Docket No.** 42390.P8182**METHOD OF PAYMENT (check one)**

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number 02-2666**Deposit Account Name** _____

- ☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

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☒ Check☐ Money Order☐ Other**FEE CALCULATION****1. BASIC FILING FEE**

| <u>Large Entity</u> | | <u>Small Entity</u> | | <u>Fee Description</u> | <u>Fee Paid</u> |
|---------------------|-----------------|---------------------|-----------------|------------------------------------|-----------------|
| <u>Fee Code</u> | <u>Fee (\$)</u> | <u>Fee Code</u> | <u>Fee (\$)</u> | | |
| 101 | 710 | 201 | 355 | Utility application filing fee | <u>710.00</u> |
| 106 | 320 | 206 | 160 | Design application filing fee | _____ |
| 107 | 490 | 207 | 245 | Plant filing fee | _____ |
| 108 | 710 | 208 | 355 | Reissue filing fee | _____ |
| 114 | 150 | 214 | 75 | Provisional application filing fee | _____ |

SUBTOTAL (1) \$ 710.00**2. EXTRA CLAIM FEES**

| | | | <u>Extra Claims</u> | <u>Fee from below</u> | <u>Fee Paid</u> |
|---------------------------|-----------|----------|---------------------|-----------------------|-----------------|
| Total Claims | <u>24</u> | - 20** = | <u>4</u> | X <u>18.00</u> | = <u>72.00</u> |
| Independent Claims | <u>3</u> | - 3** = | <u>0</u> | X <u>80.00</u> | = _____ |
| Multiple Dependent | | | | | = _____ |

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| <u>Large Entity</u> | | <u>Small Entity</u> | | <u>Fee Description</u> |
|---------------------|-----------------|---------------------|-----------------|---|
| <u>Fee Code</u> | <u>Fee (\$)</u> | <u>Fee Code</u> | <u>Fee (\$)</u> | |
| 103 | 18 | 203 | 9 | Claims in excess of 20 |
| 102 | 80 | 202 | 40 | Independent claims in excess of 3 |
| 104 | 270 | 204 | 135 | Multiple dependent claim, if not paid |
| 109 | 80 | 209 | 40 | **Reissue independent claims over original patent |
| 110 | 18 | 210 | 9 | **Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) \$ 72.00

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

| <u>Large Entity</u> | | <u>Small Entity</u> | | <u>Fee Description</u> | <u>Fee Paid</u> |
|---------------------------|-----------------|---------------------|-----------------|--|-----------------|
| <u>Fee Code</u> | <u>Fee (\$)</u> | <u>Fee Code</u> | <u>Fee (\$)</u> | | |
| 105 | 130 | 205 | 65 | Surcharge - late filing fee or oath | |
| 127 | 50 | 227 | 25 | Surcharge - late provisional filing fee or cover sheet | |
| 139 | 130 | 139 | 130 | Non-English specification | |
| 147 | 2,520 | 147 | 2,520 | For filing a request for reexamination | |
| 112 | 920* | 112 | 920* | Requesting publication of SIR prior to Examiner action | |
| 113 | 1,840* | 113 | 1,840* | Requesting publication of SIR after Examiner action | |
| 115 | 110 | 215 | 55 | Extension for response within first month | |
| 116 | 390 | 216 | 195 | Extension for response within second month | |
| 117 | 890 | 217 | 445 | Extension for response within third month | |
| 118 | 1,390 | 218 | 695 | Extension for response within fourth month | |
| 128 | 1,890 | 228 | 945 | Extension for response within fifth month | |
| 119 | 310 | 219 | 155 | Notice of Appeal | |
| 120 | 310 | 220 | 155 | Filing a brief in support of an appeal | |
| 121 | 270 | 221 | 135 | Request for oral hearing | |
| 138 | 1,510 | 138 | 1,510 | Petition to institute a public use proceeding | |
| 140 | 110 | 240 | 55 | Petition to revive unavoidably abandoned application | |
| 141 | 1,240 | 241 | 620 | Petition to revive unintentionally abandoned application | |
| 142 | 1,240 | 242 | 620 | Utility issue fee (or reissue) | |
| 143 | 440 | 243 | 220 | Design issue fee | |
| 144 | 600 | 244 | 300 | Plant issue fee | |
| 122 | 130 | 122 | 130 | Petitions to the Commissioner | |
| 123 | 50 | 123 | 50 | Petitions related to provisional applications | |
| 126 | 240 | 126 | 240 | Submission of Information Disclosure Stmt | |
| 581 | 40 | 581 | 40 | Recording each patent assignment per property (times number of properties) | 40.00 |
| 146 | 710 | 246 | 355 | For filing a submission after final rejection (see 37 CFR 1.129(a)) | |
| 149 | 710 | 249 | 355 | For each additional invention to be examined (see 37 CFR 1.129(b)) | |
| 179 | 710 | 279 | 355 | Request for Continued Examination (RCE) | |
| 169 | 900 | 169 | 900 | Request for expedited examination of a design application | |
| Other fee (specify) _____ | | | | | |
| Other fee (specify) _____ | | | | | |

SUBTOTAL (3) \$ 40.00

*Reduced by Basic Filing Fee Paid

SUBMITTED BY:Typed or Printed Name: David J. KaplanSignature: Date: 11/6/00Reg. Number: 41,105

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Serial/Patent No.: **** Filing/Issue Date: 11/6/2000
Client: Intel Corporation
Title: METHOD AND APPARATUS FOR BOOTING A USER-SELECTABLE
OPERATING SYSTEM
BSTZ File No.: 42390.P8182 Atty/Secty Initials: DJK/dkr
Date Mailed: 11/6/2000 Docket Due Date: ****
The following has been received in the U.S. Patent & Trademark Office on the date stamped hereon:

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| <input type="checkbox"/> Amendment/Response (____ pgs.) | <input checked="" type="checkbox"/> Express Mail No.: <u>EL617211314US</u> | <input checked="" type="checkbox"/> Check No. <u>38672</u> |
| <input type="checkbox"/> Appeal Brief (____ pgs.) (in triplicate) | <input type="checkbox"/> _____ Month(s) Extension of Time | Amt: <u>\$710.00</u> |
| <input checked="" type="checkbox"/> Application - Utility (<u>16</u> pgs., with cover and abstract) | <input type="checkbox"/> Information Disclosure Statement & PTO-1449 (____ pgs.) | <input checked="" type="checkbox"/> Check No. <u>38673</u> |
| <input type="checkbox"/> Application - Rule 1.53(b) Continuation (____ pgs.) | <input type="checkbox"/> Issue Fee Transmittal | Amt: <u>\$40.00</u> |
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| <input type="checkbox"/> Application - Rule 1.53(d) CPA Transmittal (____ pgs.) | <input type="checkbox"/> Petition for _____ | |
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| <input checked="" type="checkbox"/> Assignment and Cover Sheet <u>4 Pgs Signed</u> | <input type="checkbox"/> Reply Brief (____ pgs.) | |
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| <input type="checkbox"/> Disclosure Docs & Ctg & Copy of Invention Signed Letter (____ pgs.) | <input checked="" type="checkbox"/> Transmittal Letter, in duplicate <u>Utility</u> | |
| <input checked="" type="checkbox"/> Drawings: <u>3</u> # of sheets includes <u>3</u> figures | <input checked="" type="checkbox"/> Fee Transmittal, in duplicate | |

☐ Other: _____

UNITED STATES PATENT APPLICATION

FOR

**METHOD AND APPARATUS FOR BOOTING
A USER-SELECTABLE OPERATING SYSTEM**

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Attorney Docket No.: 42390.P8182

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METHOD AND APPARATUS FOR BOOTING
A USER-SELECTABLE OPERATING SYSTEM

The present invention relates to computer systems and more particularly to enabling a user to selectively boot a full or a mini operating system as the primary
5 operating system of a computer system.

BACKGROUND

Computer systems, from small handheld electronic devices to medium-sized mobile and desktop systems to large servers and workstations, are becoming increasingly pervasive in our society. Computer systems typically include one or
10 more processors. A processor manipulates and controls the flow of data in a computer by executing instructions. To provide more powerful computer systems for consumers, processor designers strive to continually increase the operating speed of the processor. Unfortunately, as processor speed increases, the power consumed by the processor tends to increase as well. Historically, the power
15 consumed by the processor, and hence its speed, has been limited by two factors. First, as power consumption increases, the processor tends to run hotter, leading to thermal dissipation problems. Second, the power consumed by a processor may tax the limits of the power supply used to keep the processor operational, reducing battery life in mobile systems and diminishing reliability while increasing cost in
20 larger systems.

Many computer system users use their computer systems as a personal information managers (PIMs), storing calendar and personal contact information to help organize their schedules. To access this information, the user typically must power-on and boot up their computer system using their sole, large operating

system, then launch the appropriate calendar and contact application programs.

Unfortunately, operating the computer system in this manner to access simple PIM information can be wasteful in terms of time spent waiting for the computer system to boot up and power spent supporting unused features of the operating system and
5 unused peripheral devices.

The present invention addresses this and other problems associated with the prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

10 The present invention is illustrated by way of example and not limitation in the accompanying figures in which like references indicate similar elements and in which:

Figure 1 is a computer system formed in accordance with an embodiment of the present invention;

15 Figures 2a-2c are different embodiments of mechanical switches in accordance with embodiments of the present invention; and

Figure 3 is a flow chart showing a method of the present invention

DETAILED DESCRIPTION

20 In accordance with an embodiment of the present invention, a computer system includes a memory subsystem to store both a full operating system (OS) and a mini OS. The full OS may be much larger than the mini OS, and may provide more features and functionality to the computer system than the mini OS. As a

tradeoff, however, the full OS may consume significantly more power than the mini OS (i.e. the computer system may consume significantly more power when operating on the full OS than on the mini OS). In addition, the full OS may take significantly longer to boot than the mini OS.

5 A feature is provided to the user to select, at power-on, which of the two operating systems the user desires to be booted as the primary OS of the system. For example, if the user only needs to use the computer as a personal information manager (PIM) to check their calendar or their address book, the user may select to boot the mini OS which supports these basic features. If, however, the user needs
10 to use the computer to perform complex spreadsheet, networking, or word processing tasks, the user may select to boot the full OS which supports these more complex features.

 Selectively reducing boot time and power consumption in this manner increases the usability, flexibility, and battery life of the computer system. A more
15 detailed description of embodiments of the present invention, including various configurations and implementations, is provided below.

 Figure 1 is a computer system formed in accordance with an embodiment of the present invention. Hub 110 couples processor 100 to memory 115 as well as to hub 125 and to one or more additional peripheral components 120 and 130, such as
20 audio and video input/output devices. Hub 125 additionally couples other peripheral components, such as keyboard 135, hard drive 140, and memory 145, to the rest of the system. Note that a method of the present invention may be implemented by the computer system of Figure 1 programmed to execute various steps of the

method. This program may reside, at least in part, on any computer readable medium such as a magnetic disk (e.g. a hard drive or floppy disk), an optical disk (e.g. a CD or DVD), a semiconductor device (e.g. Flash, EPROM, or RAM), or carrier wave, all of which are represented by memory components 115, 140, or 145 of Figure 1.

In accordance with one embodiment of the present invention, both the mini OS and the full OS are stored on hard drive 140 of Figure 1. The mini OS may be, in whole or in part, a subset of the full OS, or the mini OS may be an altogether different OS. For one embodiment of the present invention, the mini OS may be, for example, Windows* CE or other PIM-oriented OS, and the full OS may be, for example, Windows 2000, or other desktop-oriented OS. Both of these OSs are manufactured by Microsoft Corporation of Redmond, Washington. (*Third party marks and brands are the property of their respective owners).

In accordance with an embodiment of the present invention, the mini OS is much smaller than the full OS and boots much more quickly than the full OS. For one embodiment, the mini OS boots in less than one tenth the amount of time it takes to boot the full OS, and the mini OS is less than one tenth the size of the full OS. In addition, the mini OS consumes significantly less power than the full OS. The tradeoff, however, is that the mini OS may only support basic PIM functionality, including, for example, calendaring and address book features, whereas the full OS may support networking, complex spreadsheet and database applications, word processing, and audio and video applications.

In accordance with an embodiment of the present invention, at power-on, boot code is loaded into memory 115 from memory 145 in the computer system of Figure 1. This boot code may include all or a portion of a basic input/output system (BIOS) code stored in non-volatile memory 145. This boot code is executed by processor 100 to determine the state of keyboard 135, or other mechanical switch, at power-on. Note that, as used herein, the term "at power-on" is intended to mean during the period of time, soon after the computer system is switched on, when the computer system determines the state of its keyboard, or other mechanical switch, for purposes of selecting which of at least two operating systems to boot, without prompting the user to make the selection. Based on the state of this mechanical switch, as set by the user, all or a portion of either the full OS or the mini OS may be loaded into memory 115 and executed by processor 100 of Figure 1.

Figures 2a-2c show different embodiments of mechanical switches in accordance with embodiments of the present invention. Figure 2a is an example in which the mechanical switch is a power switch of the computer system. As shown, the switch of Figure 2a may be placed in one of two different states at power-on. In a first state, the switch is slid to the right, and the computer system boots the full OS. In a second state, the switch is slid to the left, and the computer system boots the mini OS.

Figure 2b is an example in which the computer system is a hand-held device, and the mechanical switch includes keypad 201. A first state may be indicated by keypad 201 of Figure 2b when the user holds down (or, alternatively, refrains from holding down) one or more keys at power-on. A second state may be indicated

when the user holds down one or more different keys at power-on. Similarly, Figure 2c is an example in which the computer system is a notebook or laptop device, and the mechanical switch includes keyboard 202. As in the case of the hand-held device of Figure 2b, a first state may be indicated by keyboard 202 of Figure 2c

5 when the user holds down (or, alternatively, refrains from holding down) one or more keys at power-on. A second state may be indicated when the user holds down one or more different keys at power-on.

For example, for the embodiment of Figure 2c, a first state may be indicated by the user by holding down the right shift key during power-on. A second state may be indicated by holding down the left shift key during power-on. Third and 10 fourth states may be indicated by holding down the Ctrl key or the Alt key, respectively, at power-on, while a fifth state may be indicated by not holding down any keys at power-on.

In accordance with one embodiment of the present invention, the mini OS 15 may not provide support for the operation of all components of the computer system. For example, referring again to the computer system Figure 1, for one embodiment of the present invention, the mini OS does not support the operation of peripheral components 120 and 130. For this embodiment, to reduce boot time and power consumption, power is not applied to peripheral components 120 and 130 if it 20 is determined, according to the state of keyboard 135, that the mini OS is to be booted.

Figure 3 is a flow chart showing a method of the present invention. At step 300, power-on occurs and the computer system attempts to determine the state of a

mechanical switch (e.g. a multi-positional power switch, keypad, or keyboard as described above). If it is determined, at step 305, that the mechanical switch is in a first state, then the full OS may be booted as the primary OS of the computer system at step 307. If, however, it is determined, at step 305, that the mechanical switch is not in a first state, then it is determined, at step 310, if the mechanical switch is in a second state.

If it is determined, at step 310, that the mechanical switch is in the second state, then the mini OS may be booted as the primary OS of the computer system at step 312. If, however, it is determined, at step 310, that the mechanical switch is not in the second state, then it is determined, at step 315, if the mechanical switch is in a third state.

If it is determined, at step 315, that the mechanical switch is in the third state, then the full OS may be booted as the primary OS of the computer system at step 317. In addition, at step 317, in accordance with one embodiment of the present invention, the full OS is made the default OS. This may be accomplished by storing, in a storage location of the computer system that is accessible during the pre-boot period, a pointer to the address location of the full OS in hard drive 140 of Figure 1. The storage location of this pointer may be, for example, memory 145, where other boot code is stored. In accordance with an alternate embodiment of the present invention, the default OS may be selected by the user during a previous, post-boot work session on the computer system using the appropriate OS tools.

Referring again to Figure 3, if it is determined, at step 315, that the mechanical switch is not in the third state, then it is determined, at step 320, if the

mechanical switch is in a fourth state. If the mechanical switch is in the fourth state, then the mini OS may be booted as the primary OS of the computer system at step 322. In addition, at step 322, in accordance with one embodiment of the present invention, the mini OS is made the default OS by, for example, storing a pointer to the address location of the mini OS in a non-volatile storage location.

If, however, it is determined, at step 320, that the mechanical switch is not in the fourth state, then, at step 325, the default OS is booted as the primary OS of the computer system. This default OS is determined by accessing the storage location in which the above-described pointer is stored.

This invention has been described with reference to specific exemplary embodiments thereof. It will, however, be evident to persons having the benefit of this disclosure that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the invention. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

CLAIMS

What is claimed is:

- 1 1. A computer system comprising:
 - 2 a first memory subsystem to store a full operating system (OS) and a mini
 - 3 operating system;
 - 4 a mechanical switch having a first state and a second state;
 - 5 a first circuit to execute a boot code and to determine a state of the
 - 6 mechanical switch at power-on; and
 - 7 a second circuit to boot the full OS as a primary OS of the computer
 - 8 system if the first circuit determines that the mechanical switch is in the
 - 9 first state at power-on and to boot the mini OS as the primary OS of
 - 10 the computer system if the first circuit determines that the mechanical
 - 11 switch is in the second state at power-on.
- 1 2. The computer system of claim 1, further comprising a storage location to
- 2 store a pointer to a default OS.
- 1 3. The computer system of claim 2, wherein the mechanical switch has a third
- 2 state, the second circuit to boot the default OS as the primary OS of the
- 3 computer system if the first circuit determines that the mechanical switch is in
- 4 the third state at power-on.

1 4. The computer system of claim 2, wherein the mechanical switch has a third
2 state and a fourth state, the second circuit to boot the full OS as the primary
3 OS of the computer system and to make the full OS the default OS if the first
4 circuit determines that the mechanical switch is in the third state at power-on,
5 and to boot the mini OS as the primary OS of the computer system and to
6 make the mini OS the default OS if the first circuit determines that the
7 mechanical switch is in the fourth state at power-on.

1 5. The computer system of claim 1, wherein the first circuit includes a processor,
2 and the second circuit includes the processor and a second memory
3 subsystem into which at least a portion of the full OS or the mini OS is loaded
4 if the mechanical switch is in the first state or the second state, respectively,
5 at power-on.

1 6. The computer system of claim 3, wherein the first circuit includes a processor,
2 and the second circuit includes the processor and a second memory
3 subsystem into which at least a portion of the full OS or the mini OS is loaded
4 if the mechanical switch is in the first state or the second state, respectively,
5 at power-on.

1 7. The computer system of claim 1, wherein the mechanical switch is a
2 keyboard.

1 8. The computer system of claim 1, wherein the mechanical switch is a power
2 switch.

1 9. The computer system of claim 1, wherein the full OS takes at least ten times
2 longer to boot than the mini OS, and the full OS is at least ten times the size
3 of the mini OS.

1 10. The computer system of claim 1, wherein the mini OS is a subset of the full
2 OS.

1 11. A method comprising:
2 enabling a user to boot a full operating system (OS) as a primary OS on a
3 computer system by placing a mechanical switch in a first state at
4 power-on; and
5 enabling the user to boot a mini OS as the primary OS on the computer
6 system by placing the mechanical switch in a second state at power-
7 on.

1 12. The method of claim 11, further comprising enabling the user to boot a
2 default OS as the primary OS on the computer system by placing the
3 mechanical switch in a third state at power-on, the default OS being either the
4 full OS or the mini OS based on user-defined setting in the computer system.

2 enabling the user to boot the full OS as the primary OS on the computer

3 system and to make the full OS the default OS by placing the

4 mechanical switch in a fourth state at power-on; and

5 enabling the user to boot the mini OS as the primary OS on the computer

6 system and to make the mini OS the default OS by placing the

7 mechanical switch in a fifth state at power-on.

1 14. The method of claim 11, wherein placing the mechanical switch in the first

2 state includes holding down one or more first keys, and placing the

3 mechanical switch in the second state includes holding down one or more

4 second keys.

1 15. The method of claim 11, wherein placing the mechanical switch in the first

2 state includes sliding the mechanical switch to a first position.

1 16. The method of claim 15, wherein the mechanical switch is a power switch of

2 the computer system.

1 17. The method of claim 15, wherein placing the mechanical switch in the second

2 state includes sliding the mechanical switch to a second position.

1 23. The computer readable medium of claim 22, wherein the operations further
2 comprise:

3 booting the full OS as the primary OS on the computer system and

4 making the full OS the default OS if it is determined that the

5 mechanical switch is in a fourth state at power-on; and

6 booting the mini OS as the primary OS on the computer system and

7 making the mini OS the default OS if it is determined that the

8 mechanical switch is in a fifth state at power-on.

1 24. The computer readable medium of claim 21, wherein booting the full OS
2 takes at least ten times longer than booting the mini OS, and the mini OS is a
3 subset of the full OS.

ABSTRACT OF THE DISCLOSURE

A computer system includes a memory subsystem to store both a full operating system and a mini operating system. The mini operating system boots much more quickly than the full operating system, and may be a subset of the full operating system. A mechanical switch is provided to the user to select, at power-on, which of the two operating systems the user desires to be booted.

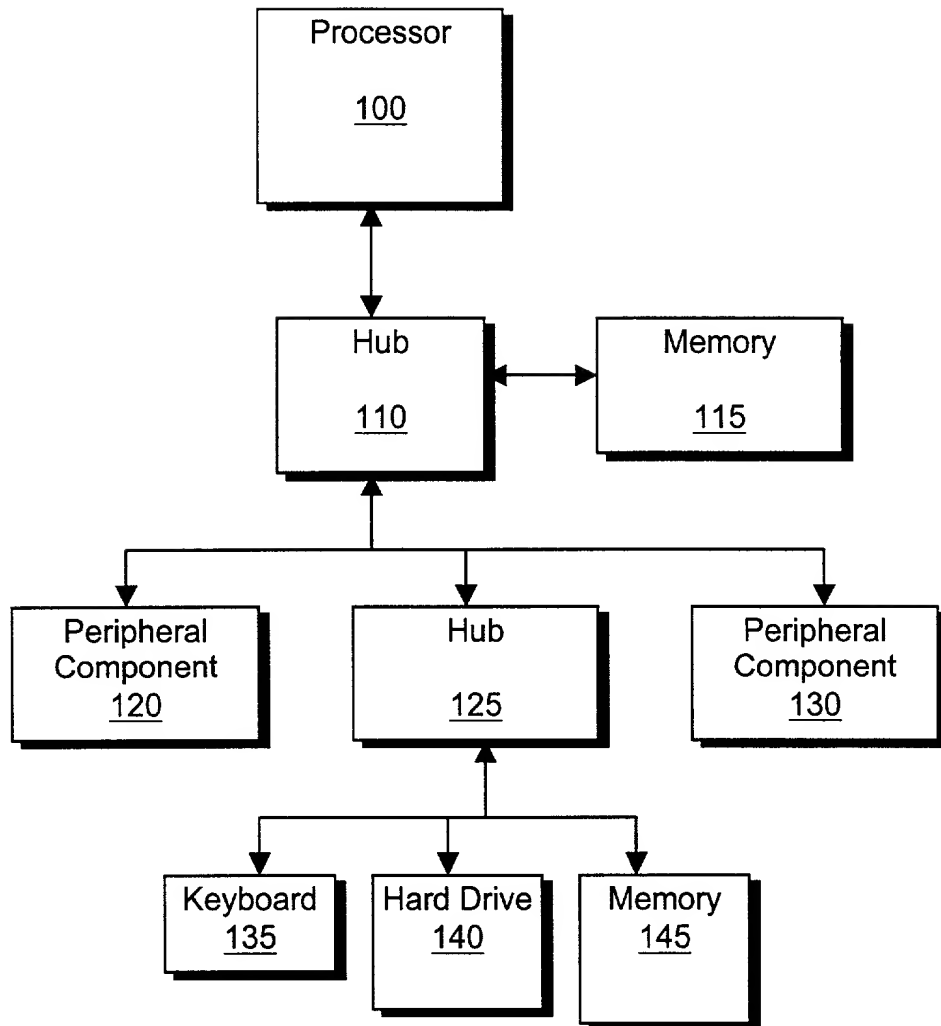


Figure 1

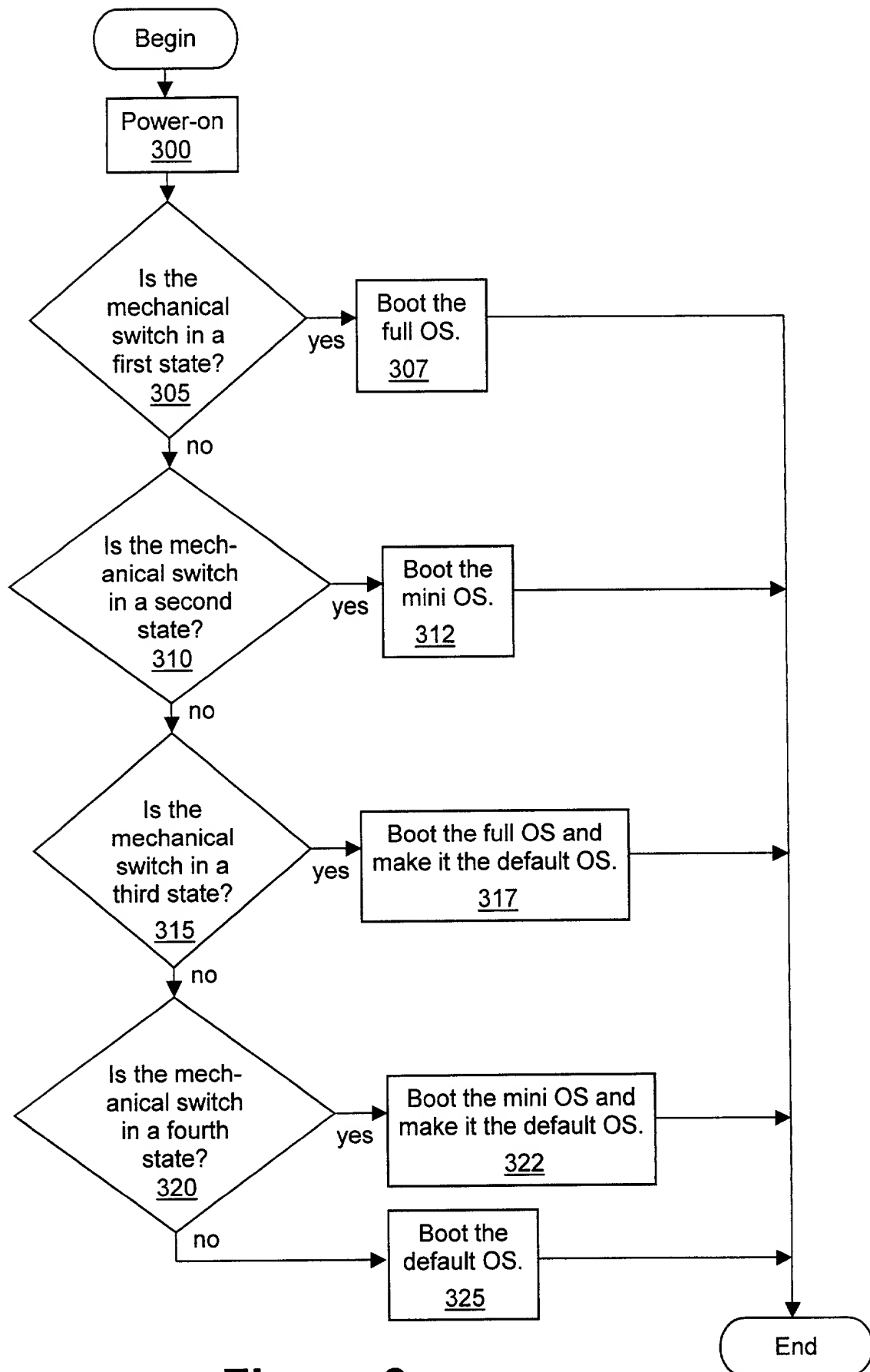


Figure 3

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION
(FOR INTEL CORPORATION PATENT APPLICATIONS)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD AND APPARATUS FOR BOOTING A USER-SELECTABLE OPERATING SYSTEM

the specification of which

X is attached hereto.
 was filed on _____ as
 United States Application Number _____
 or PCT International Application Number _____
 and was amended on (MM/DD/YYYY) _____
 (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I do not know and do not believe that the claimed invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (for a utility patent application) or six months (for a design patent application) prior to this application.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Priority
Claimed

| | | | | |
|----------|-----------|------------------------------------|-----|----|
| (Number) | (Country) | (Foreign Filing Date - MM/DD/YYYY) | Yes | No |
| (Number) | (Country) | (Foreign Filing Date - MM/DD/YYYY) | Yes | No |
| (Number) | (Country) | (Foreign Filing Date - MM/DD/YYYY) | Yes | No |

Application Number (Filing Date – MM/DD/YYYY)

Application Number (Filing Date – MM/DD/YYYY)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

| Application Number | (Filing Date – MM/DD/YYYY) | Status -- patented, pending, abandoned |
|--------------------|----------------------------|---|
|--------------------|----------------------------|---|

| Application Number | (Filing Date – MM/DD/YYYY) | Status -- patented, pending, abandoned |
|--------------------|----------------------------|---|
|--------------------|----------------------------|---|

I hereby appoint the persons listed on Appendix A hereto (which is incorporated by reference and a part of this document) as my respective patent attorneys and patent agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Send correspondence to David J. Kaplan, BLAKELY, SOKOLOFF, TAYLOR &
(Name of Attorney or Agent)
ZAFMAN LLP, 12400 Wilshire Boulevard 7th Floor, Los Angeles, California 90025 and direct
telephone calls to David J. Kaplan, (408) 720-8300.
(Name of Attorney or Agent)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole/First Inventor Dan H. Nowlin
Inventor's Signature Dan Nowlin, Jr. Date 10-25-2000
Residence Hillsboro, Oregon Citizenship U.S.A.
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Hillsboro, Oregon 97123

Full Name of Second/Joint Inventor _____
Inventor's Signature _____ Date _____
Residence _____ Citizenship _____
(City, State) (Country)
Post Office Address _____

Full Name of Third/Joint Inventor _____
Inventor's Signature _____ Date _____
Residence _____ Citizenship _____
(City, State) (Country)
Post Office Address _____

APPENDIX A

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APPENDIX B

Title 37, Code of Federal Regulations, Section 1.56 Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
 - (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.
- (b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and
- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
 - (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

- (1) Each inventor named in the application;
 - (2) Each attorney or agent who prepares or prosecutes the application; and
 - (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.
- (d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.